

CH2M HILL Hanford Group, Inc.	Manual	ESHQ
FIRE PROTECTION SYSTEM	Document	TFC-ESHQ-FP-STD-04, REV A-5
TESTING, INSPECTION, AND	Page	1 of 20
MAINTENANCE	Issue Date	July 10, 2007
	Effective Date	July 10, 2007

[Ownership matrix](#)

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1.0 PURPOSE AND SCOPE

(5.1.1, 5.1.2)

This standard provides the minimum requirements for fire protection system testing, inspection, and maintenance in government-owned facilities under the CH2M HILL Hanford Group, Inc. (CH2M HILL) contract.

Although support in achieving the requirements of this section is provided by the Hanford Fire Department, the final responsibility for ensuring full compliance with this section shall belong to the facility management. This standard establishes the minimum operability specifications for fire protection features in TFC facilities. Compliance with the inspection and testing requirements will provide the required assurance that the systems are available and reliable.

2.0 IMPLEMENTATION

This standard is effective on the date shown in the header.

3.0 STANDARD

All fire protection systems (including those identified in facility technical specifications or similar documents) shall be, at a minimum, inspected, tested, and maintained in accordance with the requirements described in the tables in this standard. Management shall provide all necessary support for the inspection, testing, and maintenance of fire protection systems.

NOTE: The building manager is responsible for completing the inspection/testing activities identified in the following tables with an asterisk (*) in the device column. All other activities are scheduled and performed by the Hanford Fire Department.

All inspection, testing, and maintenance conducted on fire protection systems shall be performed by trained personnel in accordance with Hanford Fire Department internal procedures.

4.0 DEFINITIONS

No terms or phrases unique to this standard are used.

5.0 SOURCES**5.1 Requirements**

1. [DOE O 420.1A](#), "Fire Protection." (S/RID)
2. [ORP M 420.1-1](#), "ORP Fire Protection Program." (S/RID)

5.2 References

1. [TFC-BSM-FPM PR-C-11, "Winterization Plan for 200 Area Tank Farm Facilities."](#)
~~No documents external to this procedure are required for performance.~~

Table 1. Alarm System Testing/Inspection and Maintenance.

Control Panels

1.	Panel lamps, light emitting diodes (LEDs)	Annually: Verify all illuminating devices have the capability to light and to provide the correct indications.	NFPA 72; Tables 7-2.2, 7-3.1, & 7-3.2
2.	Fuses	ATP & Annually: Remove any unlacquered fuses and verify they are the correct style and rating. Verify the appropriate supervisory signals are received. Apply inspector's lacquer. Inspect visible fuses for untampered lacquer.	NFPA 72; Tables 7-2.2, 7-3.1, & 7-3.2
3.	Circuit Interface Verification	Annually: Initiate an alarm condition for each initiation circuit or zone. Verify the signal is transmitted to the computer-aided dispatch system. Annually: Place at least one zone into alarm when bells are ringing. Verify zone transmission to HFD.	NFPA 72; Tables 7-2.2, 7-3.1, & 7-3.2
4.	Audible and Visible Trouble Signal	Annually: Verify operation of panel trouble signals and ring-back feature for systems using a trouble silencing switch which requires resetting.	NFPA 72; Tables 7-2.2, 7-3.1, & 7-3.2
5.	Bypass Disconnect Switches	Annually: When control unit (panel) has zone disconnect or bypass switches, verify each switch performs the intended function and a trouble signal is received when a zone is disconnected.	NFPA 72; Tables 7-2.2, 7-3.1, & 7-3.2
6.	Ground-Fault Monitoring Circuit	Annually: If system has ground detection feature, verify a ground-fault indication is given whenever any installation conductor is grounded.	NFPA 72; Tables 7-2.2, 7-3.1, & 7-3.2
7.	Power Supply Monitoring Circuits	Annually: Verify proper supervision for both primary and secondary power supplies. Verify battery transfer and charging features. Operate direct current bells and panel in an alarm condition for a minimum of 5 minutes on batteries.	NFPA 72; Tables 7-2.2, 7-3.1, & 7-3.2
8.	Nonrestorable Spot and Wire-Type Heat Detectors	Replace the detectors with restorable heat detector(s) having the correct temperature rating.	NFPA 72, Table 7-2.2, 13.d.3

Table 1. Alarm System Testing/Inspection and Maintenance. (cont.)

Control Panels

9.	Restorable Heat and Wire-Type Detectors	<p>Annually: Inspect all detectors to ensure they are in good condition and there is nothing to impair proper operation. Test 20% a minimum of the two <u>on each initiating circuit</u> each year, so all detectors are tested every 5 years; at least one detector per zone must be tested annually.</p> <p>Test detectors with <u>one</u> of the following, taking care not to overheat and damage the detector and surrounding environs.</p> <ul style="list-style-type: none"> • Use a heat gun or similar apparatus. • Use the built-in heating coil (supplied with the detector in some inaccessible areas). 	NFPA 72; Tables 7-2.2, 7-3.1, & 7-3.2
10.	Smoke Detectors (Ionization or Photoelectric)	<p>Annually: Inspect all detectors to ensure they are in good condition and there is nothing to impair proper operation.</p> <p>Ensure each smoke detector is operative and produces the intended response. Initiate an alarm at the installed location with smoke or other aerosol acceptable to the manufacturer.</p> <p>For sampling air duct detector, verify the device will sample the air stream in accordance with manufacturer's instructions.</p> <p>Semi-Annually: Inspect sampling air duct detectors to ensure they are secure, not damaged, and operational.</p>	NFPA 72; Tables 7-2.2, 7-3.1, & 7-3.2
11.	Smoke Detectors (Ionization or Photoelectric)	<p>Biennially (5yrs if sensitivity is remaining stable): Perform a sensitivity check using manufacturer approved testers or listed control panel equipment. Visually inspect all detectors in place, wherever possible.</p> <p>Perform sensitivity check 1 year after new installation and biennial thereafter.</p>	NFPA 72; 7-3.2.1
12.	Flame/Radiant Energy	<p>Semiannually: Inspect all detectors to ensure they are in good condition and there is nothing to impair proper operation. Perform a test using the equipment manufacturer recommended technique.</p>	NFPA 72; Tables 7-2.2, 7-3.1, & 7-3.2

Table 1. Alarm System Testing/Inspection and Maintenance. (cont.)

Control Panels

13.	Fire/Gas Detector	Annually: Inspect all detectors to ensure they are in good condition and there is nothing to impair proper operation. Perform a test using the equipment manufacturer recommended technique.	NFPA 72; Tables 7-2.2, 7-3.1, & 7-3.2
14.	Water Flow Alarm (Flow or Pressure Switch)	Semiannually: Flow water through the inspector's test valve(s) <u>or alarm test valve</u> . Monitor the response to ensure a fire alarm signal is generated at the facility fire alarm control panel within 90 seconds <u>and the local flow alarm sounds</u> .	NFPA 72; Tables 7-2.2, 7-3.1, & 7-3.2 NFPA 25, Table 5.1
15.	Extinguishing Systems Alarm Initiation Switch (Foam, Halon, <u>dry</u> chemical, CO₂ -limited water systems, etc.)	Annually: Use the manufacturer's recommended technique to test the system. Send the extinguishing system into a fire alarm condition. Monitor the signal to ensure it will transmit to the Hanford Fire Department.	NFPA 72; Tables 7-2.2, 7-3.1, & 7-3.2
16.	Manual Stations (Pull Boxes)	Annually: Actuate each manual station to verify the station transmits an alarm signal to the facility fire alarm control panel.	NFPA 72; Tables 7-2.2, 7-3.1, & 7-3.2
17.	Supervisory Signal Initiating Devices	Annually: Verify the alarm set point occurs only at the intended level and is within the limits specified under the appropriate category.	NFPA 72; Tables 7-2.2, 7-3.1, & 7-3.2
18.	Post Indicator Valve (PIV)	Annually: Verify a valve closure signal is received within two full turns or one-fifth of the valve travel from the fully open position.	NFPA 72; Tables 7-2.2, 7-3.1, & 7-3.2
19.	Butterfly, gate, and OS&Y valve	Annually: Verify a valve closure signal is received within two full turns or one-fifth of the valve travel from the fully open position.	NFPA 72; Tables 7-2.2, 7-3.1, & 7-3.2
20.	High/Low Tank Level Switch	Annually: Functionally test the device and verify alarm indication is received.	NFPA 72; Tables 7-2.2, 7-3.1, & 7-3.2
21.	High/Low Temperature Switch	Annually: Functionally test the device and verify alarm indication is received.	NFPA 72; Tables 7-2.2, 7-3.1, & 7-3.2
22.	High/Low Pressure Switch	Annually: Functionally test the device and verify alarm indication is received.	NFPA 72; Tables 7-2.2, 7-3.1, & 7-3.2
23.	ALL	NEW/REPLACEMENT BATTERY: Conduct discharge test preferably at 1 or 2-hour discharge rate. Using manufacturer's data, verify the battery demonstrates at least 100% of rated capacity. Immediately recharge battery.	NFPA 72, Table 7-3.2

Table 1. Alarm System Testing/Inspection and Maintenance. (cont.)

Control Panels			
24.	Sealed Lead-Acid	<p>Annually: (FACP and RFAR)- Check open-circuit voltage. Measure battery voltage under full-load conditions with battery charger disconnected, and direct current bells ringing. Clean all connections. *Note: (May extend test up to 4years. for specially designed high quality extended life batteries based on manufacturer's recommendations and results of previous capacity test.)</p> <p>4 Years: (FACP and RFAR)- Replace batteries or when testing indicates replacement is necessary.</p>	NFPA 72; Tables 7-2.2, 7-3.1, & 7-3.2
25.	Alarm Indicating Appliances: Supervised Devices	Annually: Actuate an initiating device to put the system into alarm. Monitor the sound level produced by each audible device to ensure it is clearly audible over the ambient background noise level. Monitor each visual alarm to ensure it can be seen clearly with normal ambient light levels.	NFPA 72; Tables 7-3.1 & 7-3.2
26.	Alarm Indicating Appliances: Unsupervised Devices	2 Months: Actuate an initiating device to put the system into alarm. Monitor the sound level produced by each audible device to ensure it is clearly audible over the ambient background noise level. Monitor each visual alarm to ensure it can be seen clearly with normal ambient light levels. Once per year this test is to be performed using FACP backup power.	NFPA 72; Tables 7-3.1 & 7-3.2
27.	Annunciators	Annually: Send one device into the alarm condition for each annunciator window. Verify the alarm is received at the local annunciator.	NFPA 72; Tables 7-2.2, 7-3.1, & 7-3.2
28.	Auxiliary Function Circuits	Annually: Functional test of all automatic initiation circuits to verify proper operation (e.g., door closer, HVAC shutdown, damper closure). See "fire dampers," item #1 in Section 2.6 for complete 2 year functional test.	NFPA 72; Tables 7-2.2, 7-3.1, & 7-3.2
29.	Electro-Thermal Links (ETLs)	<p>Annually: Verify operation of the initiating circuitry by tripping the ETL or a simulation device in lieu of the ETL. Verify electrical continuity of the ETL using the manufacturer's instructions.</p> <p>*10 Years: Electrically operate ETL, and verify it trips the associated damper.</p>	NFPA 72; Tables 7-2.2, 7-3.1, & 7-3.2

Table 1. Alarm System Testing/Inspection and Maintenance. (cont.)

Control Panels

30.	Speakers (One-Way Emergency Voice/Alarm System)	Annually: Put the system into an operating mode. Monitor for voice, signal, tone, quality etc., as appropriate. Monitor the sound level to ensure the alarm is clearly audible over the ambient background noise level in all areas of the facility.	NFPA 72; Tables 7-3.1 & 7-3.2
31.	Communications Centers and Fire Stations	Weekly: Operate an emergency power source, other than batteries, to supply the system for a continuous period of 1 hour.	NFPA 1221; 11-4.18-4.4
32.	Coded Radio Reporting Systems	Annually: Perform a front button test on all RFAR panels. Examine and clean the boxes and test all functions. This test shall include the transmission of a complete message function associated with each box tested.	NFPA 72; Tables 7-3.1 & 7-3.2

Table 2. Suppression System Testing/Inspection and Maintenance.

Suppression System

1.	Riser Flow Test	<p>Annually: Conduct a main drain water flow test to verify that the system is fully operable. Verify local water flow alarm functions.</p> <p><u>Quarterly: Conduct a main drain test on at least one riser downstream of a backflow preventer or pressure releasing device.</u></p>	NFPA 25; 9-2.6 <u>12.2.6</u>
2.	Gauges	<p>*Monthly: Check gauges to verify indicated pressure is in the normal range.</p> <p>5 Years: Check all gauges with an inspector's gauge, or replace them with a new accurate gauge of the type, style, and range required for the application.</p>	NFPA 25; 2-2.4 <u>5.2.4</u> 2-3.2 <u>NFPA 25;</u> <u>5.3.2</u>
3.	Piping, etc.	<p>2 Years: Visually inspect physical condition of piping, hangers and braces, alarm devices, hydraulic nameplate, sprinkler heads, and fittings.</p> <p>510 Years: Examine internal condition of piping where conditions exist which could cause obstructions.</p>	NFPA 25; 2-2.2 <u>5.2.2</u> 10-2.2 <u>NFPA 25;</u> <u>13.2.2</u>
4.	Sprinkler Heads	<p><u>5 Years: For solder type sprinklers of extra high temperature class, test heads in accordance with the reference.</u></p> <p>10 Years: For sprinklers installed <u>on wet systems</u> for more than 50 years, test <u>or replace</u> heads in accordance with the reference.</p> <p><u>For fast response sprinklers in service for 20 years, test heads in accordance with the reference</u></p> <p><u>For sprinklers on dry systems for 10 years, test or replace heads in accordance with the reference.</u></p> <p>Annually: Replace sprinkler heads for commercial cooking equipment and for ventilation systems.</p>	<u>NFPA 25;</u> <u>5.3.1.1.1.3</u> NFPA 25; 2-3.1 <u>5.3.1.1.1</u> 2-4.1.9 <u>NFPA 25;</u> <u>5.3.1.1.1.2</u> <u>NFPA 25;</u> <u>5.3.1.1.1.5</u> <u>NFPA 25</u> <u>5.4.1.9</u>
5.	Wet Systems (Alarm check valves & non-alarm valve risers, i.e. "shotgun" risers)	<p>4 Months: Perform external riser inspection.</p> <p>5 Years: Conduct open faceplate inspection. Clean and inspect trim strainers and check valves, filters, and restriction orifices. Repair as necessary.</p>	NFPA 25; 9-4.1 <u>12.4.1.1</u> <u>NFPA 25;</u> <u>12.4.1.2</u>

Table 2. Suppression System Testing/Inspection and Maintenance. (cont.)

Suppression System

6.	Antifreeze Systems/ Winterization	<p>Annually (Fall): Inspect all antifreeze systems each year before cold weather. Verify antifreeze solution meets NFPA 13 requirements.</p> <p>Drain sprinkler system drip lines, fire pump hose headers, drypipe sprinkler system air compressors, and dry system drum drip auxiliary drains.</p> <p>*Inspect each facility by the end of October to ensure all areas are winterized to protect the installed fire protection systems. See TFC-BSM-FPM_PR-C-11, <u>“Winterization Plan for 200 Area Tank Farm Facilities.”</u> Ensure the following (as a minimum):</p> <ol style="list-style-type: none"> Condition/operation and adequacy of heating systems, e.g. forced air, radiant heaters, portable heaters, etc. Condition/operation of thermostats and filters. Condition/operation/installation of heat tape systems. 	NFPA 25; <u>2-3.4.5.3.4</u>
7.	Deluge and Pre-action Systems	<p>*Daily: (during cold weather if not provided w/low Temperature alarm) Inspect valve enclosure heating equipment to ensure at least 5°C (40°F) can be maintained.</p> <p>*Monthly: (during cold weather if provided w/low temp) Inspect valve enclosure heating equipment to ensure at least 5°C (40°F) can be maintained.</p> <p>4 Months: Perform external riser inspection. Check and adjust priming water. Test air supervisory alarms.</p> <p>Annually: Trip test the system with the control valve opened enough to cause the valve to latch in the open position. Test both the manual trip mechanism and automatic trip mechanism, where applicable. Visually inspect and clean interior during reset.</p>	NFPA 25; <u>9-4.3.12.4.3</u>

Table 2. Suppression System Testing/Inspection and Maintenance. (cont.)

Suppression System

	<u>Deluge and Pre-action Systems (cont.)</u>	<p>3 Years: Trip test deluge valve under full flow conditions. Provide water diversion as required.</p> <p>5 Years: Visually inspect interior of deluge/pre-action valves which can be reset without removing the faceplate. Inspect strainers, filters, orifices, and diaphragm chambers.</p>	
8.	Dry Systems (Dry Valves, Accelerators, Exhausters)	<p>*Daily: (during cold weather if not provided w/low temperature alarm)</p> <p>*Monthly: (during cold weather if provided w/low temperature alarm) -Inspect valve enclosure heating equipment to ensure at least 5°C (40°F) can be maintained.</p> <p>4 Months: Externally inspect the valve and trim. Inspect the priming water level to ensure that the proper water levels are being maintained as recommended by the dry valve manufacturer.</p> <p>4 Months: Test high/low air pressure alarms on system to verify operation.</p> <p>Annually (Spring or Summer): Trip-test each dry-pipe valve, including quick opening device if installed, with the control valve partially open. Clean, inspect, and reset the valve. Inspect check valves and drip valves. Ensure water does not enter overhead piping.</p> <p>3 Years: Trip test each dry-pipe valve with the control valve wide open, once every 3 years or when the system is altered. Verify/adjust set points on all switches, as necessary.</p> <p>5 Years: Inspect strainers, filters, and restricted orifices.</p>	NFPA 25; <u>9-4.4.12.4.4</u>
9.	Air Compressors Air Dryers	<p>Annually: Check air dryers/desiccant in accordance with manufacturer's instructions.</p> <p>Perform maintenance on compressors in accordance with manufacturer's instructions.</p>	NFPA 25; <u>2-4.25.4.2</u>

Table 2. Suppression System Testing/Inspection and Maintenance. (cont.)

Suppression System

10.	Water Spray Fixed Systems	<p>Annually: Sprinkler heads shall be inspected to verify spray pattern. Piping and hangers to be inspected.</p> <p>Annually: The spray system shall be fully operated (including manual release device) to provide a system flush and verify water flow in accordance with NFPA 25, 7-4<u>10.2, 10.3</u>. Nozzle strainers shall be cleaned after each flow/flush. Confirm drainage area is not blocked or damaged.</p>	NFPA 25; 7-3 <u>7-410.2, 10.3</u>
11.	Halon Systems	<p>Semi-Annually: Check the agent quantity and pressure of refillable containers.</p> <p>Visually inspect the total system.</p> <p>Annually: Examine all system hoses for damage.</p> <p>Thoroughly inspect and test system for proper operation (including manual trip stations).</p> <p>5 Years: Inspect all hoses for integrity, and subject hoses to a pressure test. Visually inspect exterior of container for integrity in accordance with the Compressed Gas Association pamphlet C-6.</p>	NFPA 12A; 4-1; 4-2; 4-3
11.	Dry Chemical Systems (Fixed)	<p>*Monthly: Inspect system and components in accordance with manufacturer's instructions.</p> <p>Semi-Annually: Inspect and functionally test releasing devices and system operation in accordance with manufacturer's instructions. (Do not discharge chemical agent.)</p> <p>Annually: Replace fusible link temperature sensing devices.</p> <p>12 Years: Hydrostatically test the chemical container and hose assembly.</p>	NFPA 17; 9-2; 9-3; 9-5

Table 2. Suppression System Testing/Inspection and Maintenance. (cont.)

Suppression System

12.	Control Valves	<p>*Weekly: (valves without locks or tamper switches) Inspect the installation and verify control valves are in the open position.</p> <p>*Monthly: (valves with locks or tamper switches) Inspect the installation and verify control valves are in the open position.</p> <p>Annually: Perform the following on each primary, sectional, and control valve:</p> <ul style="list-style-type: none"> Oil or grease sprinkler system control valve stems. Operate all valves the full travel of their mechanism to ensure they operate easily. Maintain a record of the number of turns required to operate each valve from the fully open to the fully shut position. Reopen the valve and check to see if the number of turns to close equals the number to open. Open each PIV until spring or torsion is felt in the rod, indicating the rod <u>has not</u> become detached from the valve. Valves should be backed off one-quarter turn from wide open to prevent jamming. 	NFPA 25; 9-312.3
13.	Check Valves	5 Years: Perform internal inspection. Repair as required.	NFPA 25; 9-4.2.112.4.2.1
14.	Backflow Preventers	Annually: Flow the system at design flow rate. Measure friction loss across the preventer and compare with manufacturer's specifications maximum attainable flow rate (typically via the main drain).	NFPA 25; 9-6.2.212.6
15.	Pressure Regulating Valves (sprinklers)	<p>4 Months: Inspect condition and verify there are no leaks, and all hardware is in place.</p> <p>5 Years: Perform flow test, compare to previous test data and adjust device if necessary.</p>	NFPA 25; 9-512.5.1

Table 2. Suppression System Testing/Inspection and Maintenance. (cont.)

Suppression System

16.	Water Tanks	<p>*Daily: (during cold weather) When the temperature of the environment that surrounds the tank is 40°F or below, inspect the tank level, the water temperature, and the heating system to ensure it is operational and adequate to meet the conditions.</p> <p>*Monthly: Inspect water level. Inspect air pressure in pressure tanks. Test cold temperature alarms.</p> <p>*3 Months: Inspect support structure and general surroundings.</p> <p>*Semi-Annually: Test water level alarm. Test each relief valve on pressure tanks.</p> <p>*Annually: Inspect exterior conditions and expansion joints. Test heating systems and high water temperature limit switches. Maintain cathodic protection; cycle drain valves; and clean vents.</p> <p>*3 Years: Inspect interior of steel tanks without cathodic protection and pressure tanks.</p> <p>*5 Years: Inspect interior of tanks with cathodic protection. Test level gages.</p>	NFPA 25; 6-2; 6-3; 6-4 9.2, 9.3
17.	Standpipes	<p>2 Years: Inspect general condition of piping and appurtenances.</p> <p>5 Years: Dry standpipe hydrostatic test.</p>	NFPA 25; 3-2; 3-3 6.1, 6.3

Table 2. Suppression System Testing/Inspection and Maintenance. (cont.)

Suppression System

18.	Hose and Hose Stations	<p>*Quarterly: Inspect hose connections for general condition of components.</p> <p>Annually: Inspect to ensure:</p> <ul style="list-style-type: none"> All equipment is in place and in good condition. Hose station valves are not leaking. Hose racks or reels and nozzles are free from mechanical damage. <p>5 Years (initial); 3 Years (subsequent): Remove and service-test hose stored on racks and reels and in hose houses at intervals not exceeding 5 years after installation and every 3 years afterwards.</p>	NFPA 25; 3-2.4 ; Table 6.1 NFPA 1962; 2-3.24.3.2
19.	Fire Department Connections	4 Months: Inspect and verify Fire Department connections are accessible and free from obstructions.	NFPA 25; 9-7.1 12.7.1
20.	Mainline Strainers	<p>Annual: Flush-Clean strainer.</p> <p>5 Years: Perform internal inspection of strainer.</p>	NFPA 25; 4-2 4-4 12.4
21.	Fire Hydrants	<p>Annually: Cycle each ground valve over its full travel. Maintain a record of the number of turns for both the open and close directions. Verify the number of turns in each direction is the same.</p> <p>Annually: Lubricate and operate thread mechanisms.</p> <p>Annually: Hydrant shall be opened fully and flushed for at least one minute. Hydrant operation and proper draining shall be verified.</p> <p>5 Years: Flow test each hydrant to determine hydrant and distribution system flow characteristics. Verify against known system performance.</p>	NFPA 25; 4-4 ; 4-3 ; 9-37.2, 7.3, 7.4

Table 2. Suppression System Testing/Inspection and Maintenance. (cont.)

Suppression System

22.	Fire Pumps	<p>*Weekly: Test automatic starting on a pressure drop. Run 30 minutes minimum for diesel pumps, 10 minutes minimum for electric. <u>Perform Table 8.1 shall be used to determine the minimum required frequencies for inspection, testing, and maintenance frequencies. All records shall be maintained on all work performed.</u> s specified in Table 5.2.2 and record data specified in reference Table 5-3.2.4.</p> <p>Verify proper operation of circulation relief valves and pressure relief valves.</p> <p>*Annually: Conduct performance test of pump in accordance with 5-3.38.3.3 of the reference.</p> <ul style="list-style-type: none"> • Check controller timer. • Check for proper indication of controller lights. • Check all valves to make sure they are in the correct position (open or closed). <p>Pump performance test:</p> <ul style="list-style-type: none"> • Verify pump speed at each flow. • Record suction and discharge pressure at each flow. • Check water flow and alarm switches. • Test relief valve setting. • Calibrate gages. • Operate speed trip (internal combustion) <p>*As Required: A preventive maintenance program shall be established in accordance with the driver and pump manufacturer's recommendation.</p>	<p>NFPA 25; 5-2; 5-3; 5-5 9-58.2, 8.3, 8.5</p>
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Table 3. Miscellaneous System Testing/Inspection and Maintenance.

1.	Fire/Smoke Dampers	<p>*4 Years: Carefully disconnect the actuating device, and verify the damper closes without any additional force being required. Inspect the damper, giving attention to hinges and other moving parts, to see the damper is in good operable condition. Check the latch, if provided, and lubricate moving parts, if necessary.</p> <p><u>Dampers listed for “dynamic air flow” shall be tested under air flow conditions only if the system is designed for dynamic flow operation of the damper.</u></p> <p><u>Verify the damper force will totally close and latch the damper under normal operating conditions.</u></p>	NFPA 90A 5.4.7
2.	Fire and Smoke Barriers	<p>*2 Years: Inspect all fire and smoke barriers within the building or facility to ensure they are capable of providing the necessary control of smoke or fire (i.e., have not been penetrated, seals in acceptable condition). Any questionable findings shall be resolved with approval of the area fire protection engineer.</p>	NFPA 90A; App. B
3.	Fire Doors	<p>*Annually: Examine hardware and replace any parts found to be inoperative. Inspect Tinclad and Kalamein doors for dry rot. Inspect chains or cables used on suspended doors for excessive wear and stretching.</p> <p>Check chains or cables on counter-balanced doors, and make adjustments to ensure proper latching and to keep the doors in proper relation to the opening. Keep guides and bearings well-lubricated to facilitate operation. Keep self-closing devices in proper working condition at all times. Test doors normally held in the open position and equipped with automatic closing devices to ensure proper operation. Test all doors for proper operation and full closure.</p>	NFPA 80; Ch. 15 5.2.1

Table 3. Miscellaneous System Testing/Inspection and Maintenance. (cont.)

4.	Ventilation	<p>*Annually: (Increase frequency if necessary. Does not apply to radiological contaminated ducts.)</p> <p>For building ventilation, exhaust, blower and duct systems where flammable/combustible vapors, residues, lint, and/or fibers may accumulate, perform, as a minimum, a documented inspection with cleaning, calibration, and replacement of components as required. Ensure the following:</p> <ul style="list-style-type: none"> • grill plates are clean • Replace filter media (if design permits) • Remove any buildup of foreign material from the duct interior, if conditions warrant. <p>NOTE: The extent of inspection and maintenance necessary depends on many factors, including the environment being ventilated, material exhausted, equipment type, and operating pattern. All components exposed to the airflow should be included in the inspections. Combustible dust buildup (thick enough to obscure the surface of the duct) is a hazard. Similarly, exhaust systems for areas where combustible liquids are used (such as lubricants and solvents) can be coated with a highly combustible finish and be a hazard.</p>	NFPA 90A; App. B
5.	Portable Fire Extinguishers (All)	<p>*Monthly: Inspect each extinguisher for:</p> <ul style="list-style-type: none"> • Proper location • Accessibility • Seals not broken • Pressure gage in operable range (if provided) 	NFPA 10; 4-3.47.2.2

Table 3. Miscellaneous System Testing/Inspection and Maintenance. (cont.)

Portable Fire Extinguishers (cont.)	<ul style="list-style-type: none"> • Fullness by “hefting” (for extinguishers without a gauge.) • Physical condition <p>NOTES:</p> <ol style="list-style-type: none"> 1. Facility personnel are responsible for initialing the inspection tag during the monthly inspection. If facility personnel install new tags on the extinguishers, they must transfer the extinguisher data from the top of the old tag to the new tag. 2. <u>An electronic bar-coding system or manual log may be used for recording the monthly inspection in lieu of the inspection tag. The records shall be maintained current and available at all times for inspection.</u> 3. <u>The HFD annual inspection does not replace the facility monthly inspection.</u> 	
Dry chemical extinguishers	<p>Annually: <u>Non-stored pressure extinguishers:</u> Inspect for unimpaired physical condition, <u>perform internal inspection, pressure gage in operable range,</u> and <u>ensure</u> dry chemical not compacted. Perform internal inspection on non-stored pressure extinguishers.</p> <p>Stored pressure extinguishers: <u>Inspect for unimpaired physical condition, verify and</u> pressure gage in operable range, <u>and, weigh</u> extinguishers.</p>	<p><u>NFPA 10; 4-4.17.3.1.1.2</u></p> <p><u>NFPA 10; 4-4.37.2.3</u></p>
Carbon Dioxide & Pressurized Water	<p>*5 Years: Hydrostatically test and perform maintenance</p>	<p><u>NFPA 10; 5-27.3.1.1</u></p>
Stored Pressure (having a 12yr. Hydrostatic test)	<p>*6 Years: Disassemble and perform maintenance on units</p>	<p><u>NFPA 10; 4-4.17.3.1.2</u></p>
Non-rechargeable Extinguishers	<p>*12 Years: Remove from service.</p>	<p><u>NFPA 10; 4-4.17.3.1.2</u></p>

Table 3. Miscellaneous System Testing/Inspection and Maintenance. (cont.)

	Halon, d Dry chemical, and stored pressure extinguishers (not including pressurized water and CO ₂ .)	*12 Years: Hydrostatically Test	NFPA 10 5-27 7.3.1.2
6.	Exit Signs	<p>*Monthly: Inspect exit signs with internal electrical lighting source to ensure all lamps are functional.</p> <p>*Annually: Inspect tritium gas-powered exit signs to ensure the tritium gas tubes are not damaged, the signs are in place and are not obstructed. Replace the signs before their expiration date as noted on the individual signs.</p> <p>*Annually: Exit signs equipped with standby batteries shall be operationally tested for a minimum of 1-1/2 hours.</p>	NFPA 101; 7.10.9.1
7.	Building Emergency Lights	<p>*Monthly: Operationally test lights for a minimum of 30 seconds. During this test, it is suggested the following items be verified also:</p> <ul style="list-style-type: none"> • Lamps are not cracked or damaged • Units are securely mounted • Lamps are properly positioned to provide illumination for the required areas • Lamps illuminate within 10 seconds of switching to the backup power supply. <p>*Annually: Operationally test lights for a minimum of 1-1/2 hours.</p> <p>NOTE: When emergency generators are used to satisfy the emergency light requirements, the generators/systems shall be tested per NFPA 110, "Standard for Emergency and Standby Power Systems." The items above do not apply.</p>	NFPA 101; 7.9.3

ATTACHMENT A – RECALL FREQUENCY PROTOCOL

Recurring frequencies expressed in this standard are to be applied using the following criteria.

- a. Test frequencies may be extended by a 25% grace period on a case-by-case-basis to accommodate operational/scheduling conflicts when coordinated between, and agreed to, by the facility and the Hanford Fire Marshal.
- b. Specific calendar dates are not to be used for determining the next scheduled due date nor late date. Any activity performed within the specified frequency (e.g., monthly, annually, semiannually) complies with the requirements established by this standard.
- c. Inspection, test, and maintenance activities with frequencies longer than a month shall be scheduled to occur during the last month of the frequency specified for the given activity within this standard. The activity shall not be considered delinquent until the first day of the month following the scheduled month. For example, if an annual activity is originally to be performed in January, it shall next be scheduled for performance during January of the following year and shall comply with these criteria if performed on or before January 31.
- d. Scheduling of these activities that are performed late, whether delinquent or as permitted by the 25% grace period, shall continue to be scheduled using the original by-month sequence. For example, an annual activity scheduled for March but actually performed in June shall next be scheduled for performance the following March. Likewise, an annual activity scheduled for performance in August but performed in July would continue to be scheduled for performance during August of subsequent years.